WASHINGTON UPDATE

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Introduction

What is the role of the Federal government in matters of water and air quality? Some citizens expect Washington D.C. to provide environmental regulations that incorporate social justice goals, support research and educational programs in waste management, water quality and air quality, and all questions related to the protection of our environment today and for future generations. To protect everyone from everything. Federal leadership is seen as essential in the development of university research that leads to innovative and voluntary industry programs that protect the environment and foster good will with neighbors. Activist groups are seen as the "good guys" and instigators of consumer support for their efforts and regulations against production agriculture. An expectation is that industry programs be self-financed, self-generated and inclusive to fully meet their stewardship responsibilities for our environment, all in complete compliance with societal demands for inexpensive food. Others see federal funds availability to the food animal industries, through the Land Grant Universities, as essential for a systems approach to environmental protection with a minimal emphasis on regulatory processes. As with most situations, reality lies somewhere in the middle of these extremes.

The National Poultry Waste Management Symposium (NPWMS) has been in the forefront of attempting to merge these extreme views of public and personal responsibility, and expose the inconsistencies of proposed scenarios involving environmental programs. Since 1988 we have attempted to bring people together to discuss the latest in technology and innovative ideas that have contributed to helping the poultry industry protect our environment. Today, industry, academia, and government are here to interact for this same purpose. This presentation will summarize some of the events and leadership of federal agencies in Washington, D.C. Other speakers will expand on this information.

To allow the consumption of food animals and their products, food animal production must keep pace with the world's population. Global production of meat is projected to more than double from 229 million tonnes in 1999/01 to 465 million tonnes in 2050, and milk from 580 to 1,043 million tonnes (Livestock's long shadow). The world's hog,

cattle, farmed fish, and poultry production will increase and so will the potential for environmental contamination and charges of contributing to global warming. The "Livestock's long shadow" authors conclude that the livestock sector is a major stressor on ecosystems and therefore the planet. Livestock are seen as one of the largest sources of greenhouse gases, leading causal factor in the loss of biodiversity, and perhaps the leading cause of water pollution. Even if overstated, this situation does not bode well for the food animal systems unless changes are made. Capper et al., (2008) concluded that supplementing one million cows with recombinant bovine somatotropin (rbST) reduced feedstuff and water use, cropland area, N and P excretion, greenhouse gas emissions, and fossil fuel use compared with an equivalent milk production from unsupplemented cows. They reported rbST was a valuable management tool, the use of which resulted in less negative effect on the environment than conventional dairying. Yet, the unrelenting cry of activists and others is to not use biotechnology. And, in yielding to these cries, several of the major retail grocery chains are eliminating rbST milk from their product mix.

Regulations and Federal Programs

Air Quality

Three acts dealing with air emissions are not directed at Concentrated Animal Feeding Operations (CAFO's), but toward any animal feeding operation that exceeds air standards. The Clean Air Act sets levels of particulate matter and other pollutants such as ammonia or hydrogen sulfide and can be regulated under this act. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) does not mention CAFO's, nor does the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), but they require facility owners or operators to notify all authorities when a reportable quantity of hazardous substances (e.g., hydrogen sulfide or ammonia) is released. These Acts allow citizens and authorities to know the source and amount of hazardous material released into their local environment.

Concentrated Animal Feeding Operations (CAFO)

The Government Accountability Office (GAO) is in the final stages of their report to Congressional requesters on CAFO's. This is a comprehensive report on the effectiveness of EPA and other agencies in their water and air quality regulatory protection efforts. The CAFO rule is now at the Office of Management and Budget and expected to take effect in 2009 and to require nutrient management plans.

Multi-State Research Committees

Projects are detailed on the National Information Management and Support System (NIMSS) web site: **www.lgu.umd.edu**; or, **http://nimss.umd.edu**. These committees encourage input by industry representatives.

S1035, "Nutritional and Management Abatement Strategies for Improvement of Poultry Air and Water Quality", recently moved from the Western Region to the Southern

Region. An objective is: Evaluate nutritional and management strategies to minimize the impact of poultry production on air and water quality. The team focuses on practical research.

NE1022, "Poultry Production Systems: Optimization of Production and Welfare Using Physiological, Behavioral and Physical Assessments". While not specifically dedicated to waste management/water or air quality, objectives include: "... ensuring environmental soundness...viable production profitability".

S1032, "Animal Manure and Waste Utilization, Treatment and Nuisance Avoidance for a Sustainable Agriculture" (**http://www.ag.auburn.edu/aaes/s1000/**) objectives include: 1. land application of animal manures ...sustained land and water quality; 2. ...chemical and biological treatment processes ...; 3. ... reduce odors, gases, airborne microflora, particulate matter...; 4. ...alter the excretion of environmentally-sensitive nutrients...

Others are: S1011, Water Quality Methodology for Crop Protection Chemicals; WERA103, Nutrient Management and Water Quality; S1025 Systems for Controlling Air Pollutant Emissions and Indoor Environments of Poultry, Swine, and Dairy Facilities; NE1024, Whole Farm Dairy and Beef Systems for Environmental Quality.

Extension and Education

Livestock and Poultry Environmental Learning Center (LPELC; **http://lpe.unl.edu; http://www.extension.org/animal+manure+management)**

The landscape of animal agriculture is changing rapidly, especially in relation to environmental issues and public policy. The LPELC project, funded by the CSREES National Research Initiative, was created in an effort to widen access to new knowledge and tools for sound environmental decision making, utilizing existing avenues where possible, and developing new, innovative delivery methods where needed. Their Vision is for individuals to become involved in public policy issues, animal production, and delivery of technical services for confined animal systems. Clientele will have on-demand access to the nation's best science-based resources that is responsive to priority and emerging environmental issues associated with animal agriculture. Attaining this vision is through implementation of a wide variety of national outreach education initiatives and responsive infrastructure using a multi-disciplinary, multi-organization National Outreach Team of experts. Contact: Rick Koelsch (rkoelsch1@unl.edu 402-472-3935); Mark Risse (mrisse@engr.uga.edu; 706-542-9067); or Joe Harrison (jhharrison@wsu.edu 253-445-4638).

eXtension (**www.eXtension.org**)

eXtension is an interactive learning environment delivering the best, most researched knowledge from land-grant university personnel across America. One of the eXtension communities of practice is the Animal Manure Management site. eXtension offers: credible expertise; reliable answers based upon sound research; connections to

universities; creative solutions; customized answers; trustworthy, field-tested data; and dynamic, relevant and timely answers. eXtension allows university personnel to produce new educational and information resources on wide-ranging topics. Because it's available to students, researchers, clinicians, professors, as well as the general public, at any time from any Internet connection, eXtension helps solve real-life problems in real time.

Reports

Council for Agricultural Science and Technology (CAST) **(www.cast-science.org)**

CAST addresses issues that include animal sciences and agricultural technology, using inputs from scientists having diverse backgrounds, and others. Environmental titles are: Environmental Impacts on US Grazing Lands, 2002; Water Quality: Agriculture's Role, 1992; Waste Management and Utilization in Food Production and Processing, 1995. Upcoming report topic areas are: "Air Issues Associated with Animal Agriculture"; "Poultry Carcass Disposal Options for Routine and Catastrophic Mortality" release date 10/21/08; "Water and Land Issues Associated with Animal Agriculture; "Water, People, and the Future".

Livestock's long shadow: environmental issues and options
(ftp://ftp.fao.org/docrep/fao/010/a0701e/a0701e.pdf)

This report was provided by the Food and Agriculture Organization of the United Nations in 2007. The authors assessed the full impact of the livestock sector on environmental problems, taking into account the direct and indirect impacts of food animal production. The report was not a favorable evaluation of the food animal production industries, whose contributions were on balance seen as negative regarding their impact on the environment.

National Air Emission Monitoring Study (NAEMS)
https://engineering.purdue.edu/~odor/NAEMS/index.htm

In 2003, the National Academy of Science (NAS) released a report entitled "Air Emissions from Animal Feeding Operations" (AFOs) which highlighted air quality issues associated with AFOs. AFO emissions are now under federal regulations which include the 1990 Clean Air Act (CAA), the 1980 Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), and the 1986 Emergency Planning and Community Right-to-Know Act (EPCRA). Scientific data on livestock air emissions needed to properly regulate AFOs under the CAA, CERCLA, and EPCRA appear limited. The National Air Emission Monitoring Study (NAEMS), established in 2006 by a voluntary Air Compliance Agreement between the EPA and the pork, dairy, egg and broiler industries, will address the lack of scientific data. Livestock producers provided the financial support for the NAEMS so emissions data can be collected at select sites to: 1) accurately assess emissions from livestock operations and compile a database for estimation of emission rates, and 2) promote a national consensus for emissions-

estimation methods/procedures. NAEMS industry sponsors are listed on their web site, who work through the not-for-profit Agricultural Air Research Council. The NAEMS is overseen by the EPA Office of Air Quality Planning and Standards (OAQPS), and led by Purdue University.

Pew Commission on Industrial Farm Animal Production (IFAP) **http://www.ncifap.org**

The Pew Commission on Industrial Farm Animal Production (IFAP) "was established through a grant from The Pew Charitable Trusts to recommend solutions to the problems created by concentrated animal feeding operations in four primary areas: public health, environment, animal welfare, and rural communities." As would be expected, their findings confirmed that much of IFAP's environmental impact is from animal wastes. They claimed these wastes are in excess of the land's ability to utilize nutrients and to attenuate pathogens, and other negative impacts that include surface water eutrophication.

The report claimed the presence of pesticides, hormones, heavy metals (Zn, Cu), and veterinary pharmaceuticals contaminate animal manures and thus our surface waters. They reported that air quality degradation in and around IFAP's is a continuing problem because of the releases of toxic gases, mal-odors, particulates, and bio-aerosols containing microorganisms and human pathogens. They mention the need for high levels of water use for irrigation, animal use, cleaning buildings, and processing, but do not mention how food will be produced without water, nor the impact of human's water use/waste. They claimed that 18% of all human caused greenhouse gas emissions was from livestock, which exceeded emissions caused by the transportation sector. These emissions (methane, carbon dioxide, and nitrous oxide) are produced by animals during digestion and from degradation from uncovered waste lagoons and digesters (which also applies to humans) . Blight (2008) indicated that the EPA's data on greenhouse gas emission show that in the USA all livestock production accounts for less than 2.5% of total annual greenhouse gas emissions, but fossil fuel combustion accounts for about 80% of total emissions.

The Pew Commission's intent appeared to be the elimination of conventional animal production. In the Executive Summary they recommend a phased-in ban of all nontherapeutic antimicrobial use, and supported Federal regulations to protect animals raised on farms, IFAP's being regulated as rigorously as industrial operations, and called for new laws and regulations for farm wastes to replace existing environmental regulations. These regulations would create baseline waste handling standards and address state responsibilities, but it is unclear how many animals that would constitute an IFAP, and if this number would vary with the management option. There was no discussion of the difference between the manure output and greenhouse gas output from animals in intensive vs. extensive facilities.

Grant and Funding Opportunities

Natural Resources Conservation Service (NRCS)

Conservation Innovation Grant program (CIG)
http://www.id.nrcs.usda.gov/programs/cig/

The CIG is a voluntary program intended to stimulate the development and adoption of innovative conservation approaches and technologies. Under CIG, Environmental Quality Incentives Program funds are used to award competitive grants to various entities. High priorities include nutrient reduction in stored animal wastes. CIG benefits producers by providing options for environmental enhancement and compliance with regulations. A proposal must lead to accelerated development and adoption of innovative conservation approaches and/or technologies to address pressing natural resource concerns.

Conservation Reserve Program (CRP)
http://www.id.nrcs.usda.gov/programs/crp/index.html

The CRP, funded through the Commodity Credit Corporation, provides technical and financial assistance to address soil, water and natural resource concerns in an environmentally beneficial and cost-effective manner. The program provides assistance to farmers and ranchers in complying with Federal, State, and tribal environmental laws and encourages environmental enhancement. CRP encourages conversion of environmentally sensitive acreage to vegetative cover such as trees.

Environmental Quality Incentives Program (EQIP) ***www.nrcs.usda.gov/programs/eqip/***

EQIP provides a voluntary conservation program for farmers and ranchers that promotes agricultural production and environmental quality as compatible national goals. EQIP offers financial and technical help to assist participants to install or implement structural and management practices and incentive payments and cost-shares to implement conservation practices. EQIP activities are carried out according to an environmental quality incentives program plan of operations developed in conjunction with the producer. The practices are subject to NRCS technical standards adapted for local conditions.

Farm Pilot Project Coordination, Inc. (http://**www.fppcinc.org**)

The FPPC is a non-profit organization, that assists in implementing innovative treatment technologies for Animal Feeding Operations wastes. FPPC's objective is to foster the conservation, development and wise use of land, water, and related resources, while providing AFOs with opportunities for profitable operation.

Cooperative State Research Education and Extension Service
(http://www.csrees.usda.gov)

Small Business Innovation Research Program (SBIR)
http://www.csrees.usda.gov/fo/sbir.cfm

Small businesses can apply for SBIR funds. See the 2009 USDA SBIR request for applications (RFA) by accessing the web site. Funds are awarded as Phase I and perhaps Phase II. Agriculturally related manufacturing and alternative and renewable energy technologies projects are encouraged. Flexible research areas ensure innovative projects in the areas of air, land, or water that provide an incentive to profit from the commercialization of innovative ideas. Animal Manure Management Programs focus on dairy, beef, swine and poultry wastes, and the development of methods and technologies to: handle, collect, transport, treat animal manure; detect and abate air emissions; reduce the impact of manure on ground and surface waters; and add value to manure.

National Research Initiative Competitive Grants Program (NRI) ***www.csrees.usda.gov***

The water research program posted under the NRI is expected to operate under the Agriculture and Food Research Initiative, with information available by December 1. NRI Competitive Grants Program for fiscal year 2008 supported: 1. fundamental, mission-linked research in the biological, environmental, physical, and social sciences relevant to agriculture, food, and the environment; and, 2. research, extension, and education grants.

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